

THE
TRANSACTIONS
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ENTOMOLOGICAL SOCIETY
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I. *Contributions towards a knowledge of the Rhopalocera of Australia.* By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

[Read 1st February, 1875.]

I HAVE, for some time past, contemplated writing a descriptive Catalogue of the Rhopalocera of Australia, somewhat after the plan of my friend Trimen's admirable treatise on the African butterflies—*Rhopalocera Africæ Australis*; indeed, I have a great part of the MS. ready for the press, but one cause or another has, for months past, prevented my continuing it; and, as I do not at present see my way clear to complete it, I propose in the paper now before the Society to describe several species which I have determined to be new to science (the types of which I am anxious to secure for the National Collection), and at the same time to make a few observations upon the work of other authors who have written on the butterflies of Australia.

Subfam. DANAINÆ.

Calliplœa, n. gen.

Wings broad and short, primaries of the male with inner margin distinctly convex; the wing not marked

with sericeous streaks; secondaries of the male with a pale, generally ovate patch upon the subcostal nervure; antennæ rather short, slender.*

Type, *C. darchia* (*Euplœa darchia*, M^cLeay).

Calliplœa niveata, n. sp.

Wings above pitchy-brown, brilliantly shot with purple; primaries with a lilacine white subcostal spot beyond cell; a disco-submarginal series of nine lilac-edged white spots, united and placed obliquely towards apex; secondaries with costal area broadly silky whitish; a subochraceous patch on upper half of discoidal cell; a broad white submarginal band, beginning at the anal angle and suddenly diminishing on first discoidal interspace, whence it is only represented by two small subapical white spots on the subcostal interspaces: body blackish; head, prothorax and pterygodes white-spotted; wings below olivaceous-brown; primaries with a submarginal series of white dots and an elongate lilacine white spot on first median interspace; secondaries with two apical submarginal white dots; base black, white-spotted: body blackish, white-spotted: expanse of wings 2 inches, 11 lines.

♂, ♀ Queensland (*Whitely*); ♀ Australia. Type, B. M.

Allied to *Calliplœa hyems* from Timor, with which I confounded it in my Monograph, not having seen more than a single example; since then, however, I have examined several of them and found them quite constant; there are examples in Mr. Druce's collection.

The most nearly allied Australian species is *C. priapus* of my Monograph, an insect closely allied to, but larger, darker and altogether more brilliantly coloured than *C. darchia* of M^cLeay.

Subfam. SATYRINÆ.

Genus HYPOCYSTA.

Hypocysta undulata, n. sp.

Nearly allied to *H. Adiante* of Hübner, but the primaries with comparatively longer costal and outer margins;

* In this genus I propose to group the *E. Tulliolus* section of the old genus *Euplœa*; the latter designation comprehends at least three good natural genera.

inner margin shorter; secondaries with costal margin shorter; inner margin longer; colouring on both surfaces much brighter; marginal brown borders above better defined but narrower; secondaries with apical spot indicated as an ocellus; discal ocellus smaller, widely separated from the margin; primaries below with indication of submarginal streak; secondaries with dusky basal area not extending to the end of cell, crossed by an ill-defined brownish zigzag line, its outer edge dentate-sinuate and of a brighter red-brown than in *H. Adiante*; ocelli smaller, all well separated from basal area: expanse of wings 1 inch, 5 lines.

Champion Bay (*Du Boulay*). Type, B. M.

Hypocysta metirius, n. sp.

♂ Wings above smoky-brown; secondaries with an irregular discal fulvous fascia extending from the second subcostal to the first median branch, deeply sinuated internally beyond end of cell, and dentate-sinuate externally, bounded at its lower external edge by a large black subanal ocellus, with white pupil and orange iris; a narrow anal submarginal orange lineole: body greyish-brown: wings below altogether paler than above, primaries with an indistinct transverse discal line, an irregular submarginal line and an almost marginal line; outer margin subochraceous; a small indistinct subapical ocellus; secondaries with two irregular reddish-brown central lines, the outer one bounding the basal area; disc pale ochreous, outer margin orange; ocelli and silver lines as in the preceding species: body pale: expanse of wings 1 inch, 6 lines.

♀ Larger and altogether paler than the male; primaries below with discal transverse line dentate-sinuate; secondaries with ocelli smaller; margin paler: expanse of wings 1 inch, $6\frac{1}{2}$ lines.

Australia (*Stephenson* and *Argent*). B. M.

Hypocysta pseudirius, n. sp.

♂ Wings above smoky-brown; secondaries with discal area from second subcostal to below first median branch fulvous, irregular externally; a minute apical ocellus and a conspicuous black ocellus with white pupil, fulvous iris, and dusky zone, cut by the second median branch; a submarginal fulvous line: body grey-brown: wings below

pale grey-brown; primaries with apical half of discal area irrorated with creamy scales; an indistinct submarginal dentate-sinuate brown line; two punctiform black ocelli on discoidal interspaces: body below white; secondaries with two central irregular brown lines; discal area stramineous; four black ocelli with white pupils, narrow yellow irides and silver zones, the first apical, the second small, on lower discoidal interspace, the third and fourth on median interspaces, enclosed in a single silver zone; a submarginal silver band; outer margin orange; fringe grey-brown: expanse of wings 1 inch, 5 lines.

Between Sydney and Moreton Bay (*Damel*). B. M.

Hypocysta epirius, n. sp.

♂ Wings above pale smoky-brown; secondaries with discal area pale ochreous, nearly as in *H. pseudirius*, but the brown outer margin narrower and intersected by a broader ochreous line; discal ocellus sometimes double: body grey-brown: wings below rather paler; secondaries with two very irregular central brown lines; discal area pale brownish-stramineous; ocelli as in *H. pseudirius*, but smaller; silver zones and submarginal band indistinct: body below cream-coloured: expanse of wings 1 inch, 5 lines.

♀ Broader than male and rather brighter in colouring; secondaries above with ill-defined ocellus on lower discoidal interspace; primaries below with paler discal area; an indistinct angulated brown line and a dentate-sinuate submarginal line; two punctiform black ocelli on discoidal interspaces: expanse of wings 1 inch, 6 lines.

♂ Australia (*Macgillivray*); ♀ Moreton Bay (*Gibbons*). B. M.

Subfam. NYMPHALINÆ.

Genus NEPTIS.

Neptis latifasciata, n. sp.

Nearly allied to *N. Shepherdi* of Moore, but differs from it in the less distinct discoidal streak and spot of primaries, the larger discal spots, the more distinct submarginal spots; and the much broader transverse band of secondaries: expanse of wings 2 inches, 9 lines.

Queensland (*Whitely*). Type, B. M.

Neptis mortifacies, n. sp.

Wings above black-brown, fringe white-spotted; primaries with three points in the cell, two placed obliquely beyond the cell, a subcostal point, and two subapical discal spots (placed obliquely), a large bifid spot (cut by the second median branch) on disc, an elongate bifid spot on inner margin, and an irregular submarginal series of small spots, white; the large discal and the internal spots narrowly edged with dull lilacine scales; secondaries with a broad central subquadrate white band, narrowly edged externally with dull lilacine; six minute discal white points: body dark brown: wings below olivaceous-brown, all the white markings much larger than above; discoidal area of primaries reddish-brown, internal area pale brown; a basal subcostal white streak; secondaries with a dirty-white subbasal band: body creamy whitish: expanse of wings 2 inches, 5 lines.

Queensland (*Whitely*). Type, B. M.

Allied to *N. Venilia* and *N. illigera*, the large discal spot of primaries directed inwards as in the latter species, the band of secondaries as broad as in the broadest examples of *N. Agatha*.

Junonia albicincta, n. sp.

Junonia Orithya, Linn. (part).

♂ Primaries above black, two reddish-orange spots in discoidal cell, central costal area sordid white, a white oblique band from second third of costa to outer margin, sinuated internally, cut by the black nervures, and interrupted on lower discoidal and second median interspaces by a blue-black transverse fasciole; a trifid white subapical fasciole; a submarginal series of decreasing sordid white spots; fringe white-spotted, a small subapical black ocellus with purple pupil and orange iris, and above it part of a second similar ocellus; a very indefinite ocellus on first median interspace; secondaries bright blue, changing in certain lights to violet; interno-basal area black; costa and inner margin brown; a small ocellus on first median interspace, and occasionally a black spot with purple centre on upper discoidal interspace; outer margin, including fringe, broadly white; the edge and a very narrow submarginal line grey-brown: body black-brown, head reddish, antennæ white: wings below sordid white or cream-coloured; pri-

maries with discoidal area pale pearly blue, crossed by three black-edged orange bands; discal area crossed from costa to external angle by a broad diffused dark brown nebulous band, relieving the white band of upper surface; ocelli as above, but sometimes dull and always distinct; all the white spots as above; secondaries crossed towards base by several indistinct brownish or better defined orange lines; an oblique dark or reddish-brown sinuated band (sometimes represented by two parallel lines) from costa to anal angle; discal area at times somewhat dusky, a row of blackish dots, two of which are most frequently represented by large violet and black ocelli with orange irides; a submarginal series of brown inverted lunules and a fine marginal line: body cream-coloured: expanse of wings 2 inches, 1 line.

♀ Larger than the male, both ocelli well defined on all the wings; basal half of secondaries above black-brown; marginal lines well marked; orange colouring below pronounced; a distinct, pale-ochraceous, forked marking towards base of secondaries: expanse 2 inches, 2 lines.

N. Australia (*Elsey*); Queensland (*Whitely*). B. M.

This species, although nearly allied to *J. Orithya*, may always be distinguished by the much whiter outer border of secondaries; the male also differs constantly in the obsolete character of the lower ocellus of primaries, the almost entire absence of blue at external angle, and frequently in the absence of the upper ocellus of secondaries, both of the ocelli being also constantly smaller.

Genus DIADEMA.

Diadema constans, n. sp.

♂ Similar to *D. nerina* ♂, from which it differs as follows:—Primaries with outer margin paler; subapical white spot bifid, postcellular trifold white patch much narrower; a discal series of five white dots from the subapical spot to beyond the outer extremity of the postcellular patch; secondaries with the central quadrifid white patch narrower (sometimes entirely suffused with lilacine); five discal white dots; marginal area paler; wings below altogether more uniform in tint; the marginal and submarginal lunulate spots uniformly dull buff; the white bands narrower and tinted with pink, that of secondaries edged with purplish internally; the discal series of dots uniformly small and white; primaries with barely a trace of the reddish colour-

ing in discoidal cell, no black colouring on the lower half of disc, and the subcostal spots reduced to minute dots: expanse of wings 3 inches, 2 lines.

♀ Somewhat like *D. nerina* ♀, but without a trace of the tawny colouring above, with the white band of primaries and the broad central white patch of secondaries surrounded and tinted with brilliant purple instead of bluish-green; the squamose submarginal lunules pale brown; secondaries with the outer edge of the central patch dentate-sinuate as in *D. Diomea*; five discal white dots; wings below much more uniform than in *D. nerina*, submarginal lunulate spots whitish, becoming obsolete towards apex of primaries; the white band of secondaries much broader, dentate as above; the discal series of small spots smaller and whiter; primaries with only a tint of reddish on basal half of primaries, no tawny patch; only the external angle blackish; secondaries with no trace of the mahogany-colour on outer half of disc; costal spot semicircular, submarginal spots larger: expanse of wings 4 inches, 4 lines.

♂, ♀ Tasmania? Type, B. M.

The above species was purchased at the sale of the Collection of the Entomological Society, and as it is certainly of the Australian type, and many of the Lepidoptera then obtained were from Tasmania, I have little doubt but that the above locality is correct: there were certainly some N. Indian insects in the same lot, but the Indian type of *Diadema* is quite distinct from the Australian; besides which it is probable that if it were an Indian species Mr. Moore would have it in his Collection, which he certainly has not.

Before leaving, for the present, the Australian Butterflies, I should like to say a word or two respecting the Catalogue prepared by Mr. Masters, and Mr. Miskin's criticism of it in a paper read before the Entomological Society in 1873. I need scarcely say that I do not agree with either author in rejecting the excellent arrangement of the Suborder proposed by Mr. Bates in the Journal of Entomology; for I think, when they have seen and studied that paper (instead of ascribing the arrangement to our worthy friend Mr. Kirby), they will at once see that it is the only classification of the butterflies ever proposed which shows a clear perception of the affinities of the groups, or which reduces them to anything like a natural series.

Mr. Miskin corrects Mr. Masters as to *D. Petilia* of Stoll, but he is mistaken; *D. Chrysippus* is perfectly distinct; we have plenty of both, and they are as constant as any two existing species: *D. Chrysippus* does not occur in Australia; *Danais limniace* does not occur in Australia, it is only found in India; *D. hamata* is a smaller and quite distinct species, and is, I think, identical with *D. australis* of Boisduval; *Euploea Angasii* is a perfectly distinct species, of which we have a good series in the Collection of the British Museum; it is more nearly allied to *E. cleutho* than to *E. sylvester*, Fabr.*

There are, I believe, four distinct species of *Diadema* in Australia—*D. alimena*, Linn.; *D. alcemene*, Cramer (white bands on undersurface of both sexes indistinct); ♂ *D. auge* = ♀ *D. nerina* = ♀ var. *D. proserpina*, Cram. (white bands below distinct, tawny colouring more prevalent above); and *D. constans*, n. sp., suprâ.†

Diadema Lisianassa (nec *Lasinassa*) is = *D. Manilia*, Cramer, and only occurs, so far as I know, in Amboina: *D. Bolina* ranges all over India, from the Himalayas to Ceylon, and is of a very different type.

Argynnis niphe does not occur in Australia; the insect intended is *A. inconstans*, Butler (Cist. Ent. vii. p. 164): *A. niphe* is a well-known mimic of *Danais Chrysippus*, but, so far as I have been able to ascertain, *A. inconstans* has not followed its example with respect to *D. petilia*.

Cynthia arsinö of Masters is the *C. ada* of M. R. Butler, P. Z. S. 1873; *C. arsinö* appears to be confined to Amboina and Ceram, but at any rate the Queensland species is utterly different.

Doleschallia Australis, Felder, is quite distinct from *D. bisaltide*. Mr. Miskin is also wrong in considering the genus to be identical with *Kallima*.

Mycalesis Remulia of Cramer does not occur in Australia, the *Satyrus Remulia* of Godart being quite distinct, and = *M. terminus*, Fabricius.

In my Catalogue of *Satyridæ* I restricted *Xenica*, Westwood, to the two species *X. abeona* and *X. Joanna*; and as I have figured the structural distinctions between my two genera *Geitoneura* and *Argynnina*, it would be

* With regard to this species see my Fabrician Catalogue, p. 3 (1869).

† We have a good series of *D. alcemene* and *D. auge* in both sexes, but no intermediate.

mere waste of time to repeat them here: as Professor Westwood, in first characterizing the group *Xenica* as a subgenus, did not mention which of the species included therein was his type, I had an admitted right, when I split it up into three genera, to select any one of the species as type, and I was perfectly justified in retaining that type in its original position (making it a subgenus of *Epinephele*, as it had formerly been of *Lasionmata*). Kirby in this, as in several other instances, went out of his way to sink properly constituted genera: he would have done much better had he restored *Thecla betulae* to its genus and turned out all the pretty invaders which are often now referred to the Fabrician genus, to the exclusion of the type; this must be done eventually,—indeed most Entomologists are doing it already.

Mr. Masters has wrongly referred the species of *Hypocysta* to *Cænonympha* (not to *Mycalesis*); but I believe that *Cænonympha* does not occur in Australia.

Mr. Masters also asserts that *T. Hecabe* is = *T. Sari* of Horsfield (of which we possess the type); I can assure him, however, that the two insects are as distinct as almost any two in the genus: *T. Sari* is confined to Java, Borneo and perhaps Malacca.

Pieris aruna of Masters (nec Boisduval) is *Delias inferna* of Butler: *D. caneus* does not occur in Australia, nor does a single typical *Pieris*; the species in the Catalogue by Mr. Masters are referable to the three genera *Delias*, *Appias* and *Belenois*: *Eronia* does not occur in Australia, but *Nepheronia* may. *Callidryas* is now restricted to the *C. eubule* group, the Old World species being all referable to *Catopsilia*.

C. evangelina does not occur in Australia, nor does *C. pyranthe*. In the *Papilioninæ*, I would correct the following errors—*Ornithoptera euphorion* and *O. poseidon* are sexes; *Papilio erithonius* is not = *P. sthenelus*, and does not range into Australia; *P. sarpedon* is quite distinct from *P. choredon*, and *P. ulysses* from *P. joesa*; *P. sarpedon* ranges from N. India to Borneo, but I think no farther; *P. ulysses* is confined to the Moluccas, and is as distinct from *P. joesa* as it is from *P. philippus*, *P. pericles* or *P. telegonus*. *P. lycaon*, Westw., has nothing whatever to do with *P. eurypylus*, L.

In the *Hesperidæ*, I would suggest that the generic designation *Proteides* be abandoned, *P. vulpecula* of Prittwitz not being a *Proteides*, but = *Netrocoryne*

repanda of Felder. *N. beata* and *N. denitza** of Hewitson are not referable to the latter genus, but to *Chætocneme*. *A. argenteo-ornatus* of Hewitson is certainly not an *Astictopterus*. *Hesperilla halyzia* and *H. Leachii* are sexes.

As regards the *Lycænidæ*, I have paid but little attention to them, but I should refer "*Lucia*" *lucanus* to *Zeritis*; *L. aurifer* is identical with *Lycæna discifer*, and would better be placed in *Chrysophanus*; *Holochila absimilis*, Felder, should be retained as a distinct genus; *L. agricola* is a *Lycæna*, *L. alsulus* probably a *Lampides*, *L. amazara* a *Lycænesthes*, *L. ancyra* and *berenice* species of *Lampides*, *L. biocellata* probably *Lycænesthes*, *L. byzos* probably *Scolitantides*, *L. enjrus* and *damoetes*, *Lampides*; *L. danis* a *Danis*, *L. dion* a *Lampides*, *L. erinus* a *Lycæna*, *L. ignita* a *Miletus*, *L. labradus* and *lysimon*, *Lycæna*; *L. perusia*, *platissa*, *serpentata* and *strabo* species of *Lampides*, *L. salamandri* = *L. taygetus* a *Danis*, *L. xanthospilos* a *Pithecopis*.

The name *Miletus* has priority over *Hypochrysops*, and should be retained: *M. epicletus* is not Australian. There are two nearly allied species of *Amblypodia* in Australia, one of them nearly allied to *A. amytis*, the other to *A. centaurus*; probably Mr. Miskin got hold of one and Mr. Masters of the other; the two insects seem both to be distinct from the above-named species.

Since the publication of Mr. Masters' Catalogue, several new Australian forms have been described both by Mr. Hewitson and myself, but I shall reserve them, as well as the question of admitting all the other species claimed for the Australian fauna by Mr. Miskin, for my intended work on the Butterflies of Australia.

* Hewitson's figures of these species are, I believe, wrongly numbered.